

Uberlogger Manual

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Version R02

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1. Introduction

Welcome to the Uberlogger User Manual. The Uberlogger allows you to measure and record voltage, temperature, and digital inputs. With its ability to log and store data directly to an SD card in the universally readable CSV (Comma Separated Values) format, Uberlogger is a simple, yet powerful measurement device.

Designed with both precision and ease-of-use in mind, Uberlogger integrates effortlessly into a range of applications such as industrial control, environmental monitoring, research, and development, and much more. Whether you are monitoring temperature and voltage fluctuations in a factory setting or capturing data for scientific research, Uberlogger can meet and exceed your data acquisition requirements.

This manual will guide you through all aspects of the Uberlogger: from setup, operation, data retrieval, troubleshooting, to maintenance. If you encounter any issues or have questions while using the Uberlogger, our dedicated support team is available to assist you. You can find our contact information at the end of this manual.

Thank you for choosing the Uberlogger for your data-acquisition needs. We are confident that this device will prove to be an indispensable tool in your projects, research, and data analysis projects.

Happy logging!

1.1 Safety Precautions

1.1.1 Voltage Limitations

The Uberlogger is designed to operate with a 5V power supply only. Do not attempt to power the device with a voltage higher than 5V, as it may cause permanent damage to the device and void the warranty. The maximum voltage that the device can handle on the inputs is +/- 60V. Exceeding this voltage range may lead to unsafe situations to the user and may break the Uberlogger.

1.1.2 Temperature Range

The Uberlogger is suitable for use in environments with temperatures ranging from 10 °C to +50°C. Operating the device outside this temperature range may lead to inaccurate measurements or damage to internal components.

1.1.3 Storage Temperature

When not in use, store the Uberlogger in a dry, cool environment within the temperature range of 10°C to +40°C.

1.1.4 USB-C Connector

Use only the provided USB-C cable or compatible accessories to connect the Uberlogger to a USB-C port or a 5V power supply. Using non-certified cables may lead to electrical issues or malfunction.

1.1.5 Power Supply Current

Ensure the power supply used to power the Uberlogger provides a minimum current of 300mA. Using a power supply with lower current may result in unreliable performance or data loss.

1.1.6 Avoid Water Exposure

The Uberlogger is not water-resistant, so keep it away from liquids and moisture to prevent damage.

1.1.7 Secure Mounting

When using the Uberlogger, ensure it is securely mounted or positioned in a stable manner to prevent accidental falls or damage during operation.

1.1.8 Environmental Conditions

Operate the Uberlogger within the specified temperature range (15°C to +50°C) and avoid exposing it to extreme temperatures or environmental conditions that could affect its performance.

1.1.9 Proper Power Down

Always power off the Uberlogger properly before disconnecting it from the power source or USB-C port to prevent data corruption and ensure a safe shutdown.

1.1.10 Adherence to Local Regulations:

Comply with all relevant safety regulations, codes, and standards applicable in your area when using the Uberlogger.

By following these safety precautions, you can ensure the safe and reliable operation of the Uberlogger while utilizing its capabilities for precise voltage and temperature data acquisition in a wide range of environments and applications.

2. Package content

The Uberlogger contains the following items:

- 1x Uberlogger
- 1x NTC (Negative Temperature Coefficient) sensor
- 1x USB-C cable

Verify that all these items are present in the package. If something is missing, please contact Uberlogger or the supplier.

3. Starting the Uberlogger

3.1 Power Up

Connect the provided USB-C cable into the Uberlogger and plug the other end into your PC or a USB charger that provides 5V and at least 300 mA. Flip the power switch to 'on' and you should see a green LED light up. Switch the power switch to the 'on' state. The green LED should turn on.

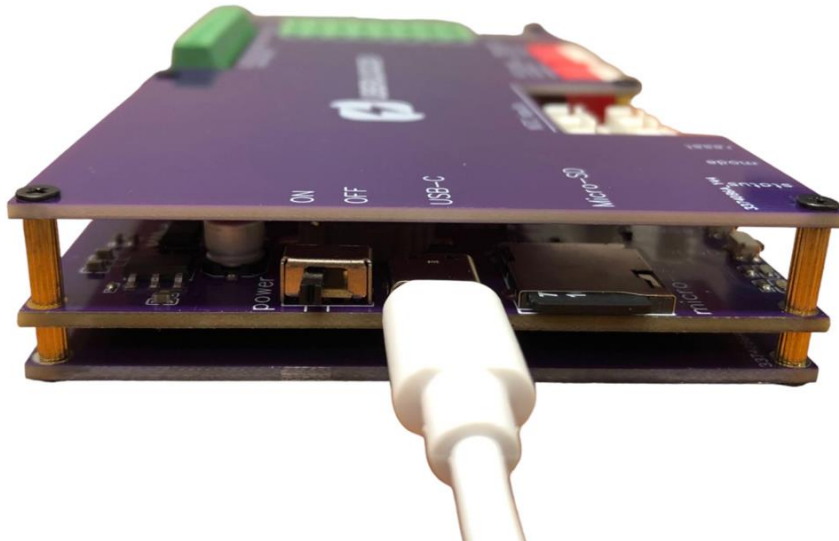


Figure 1: connecting the Uberlogger with the USB connector.

3.2 Connect to Wi-Fi & accessing the portal.

From your PC, connect to the Wi-Fi network that reads as “Uberlogger-XXXXXXX,” where 'XXXXXXX' represents your unique Uberlogger ID.

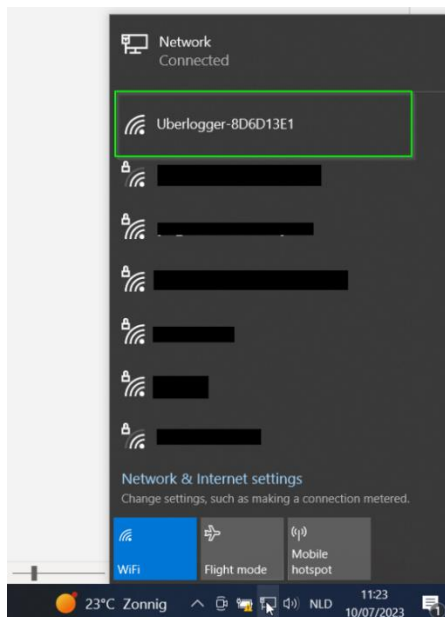


Figure 2: connecting with the Uberlogger over Wi-Fi. Note that you should see the network Uberlogger-XXXXXXX with XXXXXXXX is unique for your Uberlogger.

Once connected, open your preferred browser, and navigate to <http://192.168.4.1>. You should now be viewing the Uberlogger live data page.

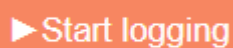
3.3 Starting and stopping logging

Put an SD card formatted as FAT partition into the SD card slot on your Uberlogger.

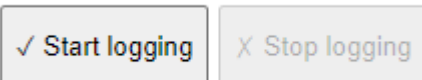


Currently only SD cards up to 32GB and FAT is supported.

- **Start logging** Start the logger by either:
 - 1.1. Pressing the “mode” button on the side of the Uberlogger for about 1 second to start logging.
 - 1.2. Pressing “Start logging” on the top right corner of the user interface:



- 1.3. Going to the “Logging” tab inside the and click on “Start logging”:

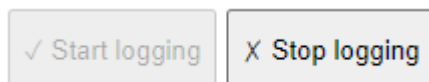


The green LED on the Uberlogger should blink at an interval of around 1 second to indicate it is logging.

- **Stop Logging:** When you are done, you can stop logging by:
 - 1.4. Pressing the mode button for 1 second
 - 1.5. Pressing the stop logging button in the top right corner:



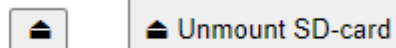
- 1.6. Clicking “Stop logging” under the "Logging" tab:



3.4 Retrieve your data

Your logged data can be retrieved in the following way.

- 1.7. **Ejecting the SD card:** before you can eject your SD card, you need to unmount the SD card by hitting the “eject” button at the top of the page or by pressing “unmount” on the “Logging tab.” . You can only unmount while not logging.



After this you can insert the SD card into a PC and retrieve the data from there.



Important: do not manually eject the SD-card while the SD-card is mounted and/or while logging. Failing to do so may corrupt your data!

1.8. **Using the file browser:** you can download the csv from the file browser which can be found under the "Logging" tab.

4 Connecting inputs

4.1 Analog inputs

For analog inputs, connect to AINx and its corresponding GND.

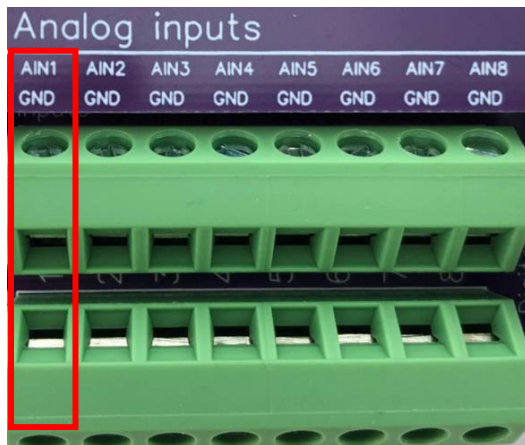


Figure 3: analog inputs. Each analog input has a ground signal indicated as GND opposite of the signal as indicated in the figure.

You can connect the analog channel to AINx and its corresponding GND, which is opposite of the positive terminal as indicated above in red. The GND and AINx terminal can handle voltages up to $-60V$ and $+60V$, respectively. You can insert the wire in the screw terminal by first screwing the terminal open, inserting the wire and then screwing it tight.

4.2 NTC inputs

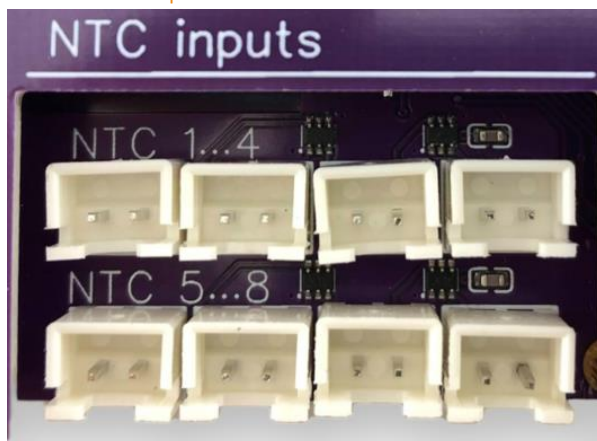


Figure 4: NTC inputs. The top ones are NTC1 till NTC4. Bottom row NTC4 till NTC7

In case you want to use the NTC, you can plug it directly into the socket you want to. The top 4 connectors are connected to channel 1 to 4 and the bottom 4 connectors to channel 5 to 8, respectively.

4.3 Digital inputs

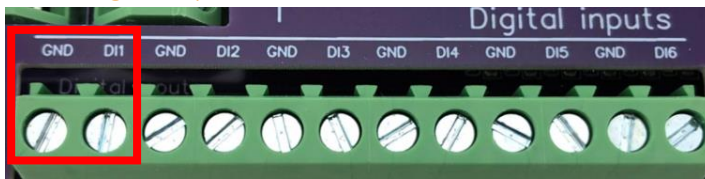
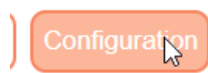


Figure 5: digital inputs have the ground to the left of its digital channel.

One digital channel terminal pair is shown above, where the GND of DIx is left of the positive terminal. Note that the digital inputs can handle voltages of maximal +/- 60V.

5 Configuration

In the user interface portal, you can configure the Uberlogger under the “Configuration” tab:

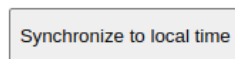


5.1 Synchronizing the time

If you would like to synchronize your Uberlogger's time with your local PC or device you are using, click “Synchronize to local time”

System time

To ensure recordings are indicating the correct time, you can synchronize the real time clock with the local time.



Note that the time shown in the user interface is representing the time as the device you are using to control the user interface. The time stored in the CSV is the UTC time, so without time zone and without daylight saving time.

5.2 Setting the sampling frequency and resolution

You can set the sample rate and resolution by going to “Channel configuration” and selecting the desired sample rate and resolution. To save the settings, click “Save all settings” or “Save channel settings”.

Channel configuration

Sampling

Select the desired sample rate:

Select the desired analog resolution:

Figure 6: selecting the sample rate and resolution.

5.3 Sampling frequency

The Uberlogger can log input channels at sampling frequencies ranging from 1 Hz to 250 Hz.

Choosing the right sampling frequency

The appropriate sampling frequency for your measurements depends on the signal you wish to capture accurately. It is recommended to set the sample rate at least twice the maximum frequency of the signal of interest. For instance, if your signal's highest frequency is 50 Hz, logging at 100 Hz will prevent aliasing (signal distortion due to a too low sample rate).

For temperature logging, most applications can achieve satisfactory results with sampling frequencies as low as 1 Hz or 5 Hz. This ensures sufficient data points for precise temperature measurements without significantly increasing data storage requirements.

5.4 Resolution

The Uberlogger can log at 12- or 16-bit resolution.

The 16-bit resolution provides higher precision and sensitivity compared to 12-bit. This is achieved by internally oversampling the input channels and applying a first order IIR low-pass filter. This enhancement is especially advantageous when measuring small variations or fine details in signals.

Note: When utilizing NTC sensors, it is important to be aware that the resolution for the corresponding channel will be automatically downscaled to 12-bits. This means that, even if the Uberlogger is set to 16-bit resolution for other channels, the NTC channel will operate at 12-bit resolution.

5.5 Analog channels

You can set the analog channel mode and voltage range under “Analog channels” as shown in Figure 7.

Analog channels

Select the mode used for the analog channels.

Important: ensure the hardware configuration (DIP-switch setting) is equal to the settings below.

Note: range select has no effect when the NTC temperature input is used.

Analog channel	Mode	Range
Channel 1	Analog in ▼	+/-10 V ▼
Channel 2	Analog in ▼	+/-10 V ▼

Figure 7: channel mode and voltage range

5.5.1 Channel mode

You can select the channel mode for analog channels as either “Analog in” or “NTC” (negative temperature coefficient) temperature sensors.



Important: do not forget to set the red DIP switch on the Uberlogger for the channel mode when changing these settings

5.5.2 Voltage range

When selecting the mode “Analog in” you can also select the voltage range “+/- 10V” or “+/- 60V”. Note that this is not possible when having “NTC” selected. Changing the range will give you a higher accuracy when choosing +/- 10V range or a broader range when selecting + / - 60V.

! **Important:** do not forget to set the red DIP switch on the Uberlogger for the voltage range when changing these settings

5.5.3 Setting the channel type and voltage range switches

It is important to manually toggle the switch levers for the voltage range on the Uberlogger to the setting you set in the configuration, since this is not detected automatically. You can do this using the red DIP switches as shown in Figure 8. Set the DIP switches with the switches facing towards you:

- For NTC, put the lever of the corresponding channel of the left DIP switch UP. For analog input, put the channel of the left DIP switch DOWN (off).
- For -10V/+10V range put the lever of the corresponding channel of the right DIP switch UP (on) and for -60V/+60V set the switch DOWN (off)

To save all the settings for the channel configuration, click the “Save all settings” button.

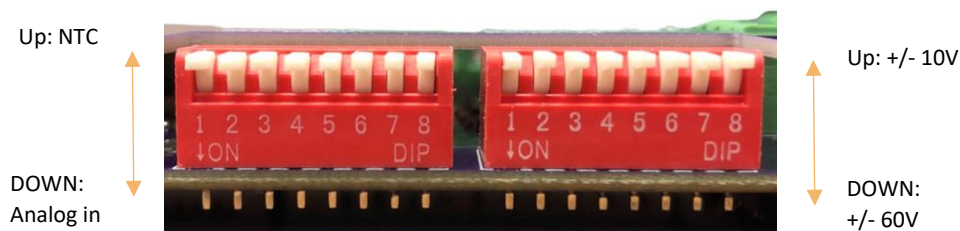


Figure 8: DIP switches to set the channel mode and voltage range. In this figure, all channels are set to NTC channels (left DIP switches all up) with a range of -10V/+10V (right switches all up)

5.6 Analog calibration

To make a zero-offset calibration, make sure you disconnect all the wires from the inputs, including the temperature sensors. Note that you cannot do calibration while logging. Put all the DIP switches of the left DIP switch set to analog IN (down/ “On”). Then, click the “Start calibration” button under “Analog Calibration”, and confirm the message box that you disconnected the wires and put the DIP switches correct. A status message shown under the button will show when the calibration is done.

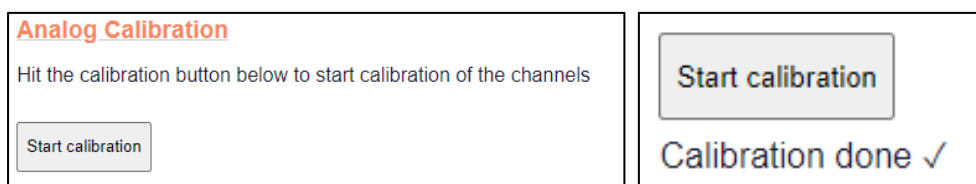


Figure 9: button to start calibration (left), calibration button with state under it (right)

5.7 Logger timestamp

The Uberlogger includes a time logging feature in the CSV data format. You can easily synchronize the Uberlogger's internal clock with the time of the PC or mobile phone you are using to access the interface. It is important to be aware that the recorded time is stored in Coordinated Universal Time (UTC) format, without accounting for daylight saving time adjustments.

5.8 Wi-Fi configuration

The Uberlogger interface is accessed over Wi-Fi. The Uberlogger can operate in two modes: hotspot mode and hotspot + client mode.

5.8.1 Hotspot mode

Wi-Fi configuration

Wi-Fi channel Hotspot

Select the Wi-Fi channel for the hotspot

Note: Please press the reset button manually after saving this setting

Connection mode

- Hotspot mode only
UberLogger acts as a Wi-Fi-hotspot where you can directly connect to.
- Hotspot + Client mode
Next to Wi-Fi hotspot, the UberLogger connects to your Wi-Fi-network as a client, and you can access the UberLogger through the IP-address that is assigned through your DHCP server.

Save Wi-Fi settings

In hotspot mode, you can connect to Uberlogger via any device with an integrated Wi-Fi adapter and access the control panel through <http://192.168.4.1> via your favourite web browser. Note that using this mode will disconnect you from the internet while you are connected to the Uberlogger hotspot. The SSID of the hotspot will be in the form of Uberlogger-XXXXXXXX and cannot be changed.

5.8.2 Hotspot Wi-Fi channel

If you are experiencing connection problems like a slow connection or lengthy delays, you can try to change the Wi-Fi channel. You can set the Wi-Fi channel for the hotspot, ranging from channel 1 to 13. By default, the channel is set to 1.



Important: when changing the Wi-Fi channel, you need to manually reset the logger to make the setting active.

5.8.3 Hotspot + Client mode

In Hotspot + client mode, the Uberlogger will have its hotspot mode enabled and it can connect to another Wi-Fi network you set. Select "Hotspot + Client mode" and fill in the SSID and password of the Wi-Fi network you want to connect to

Note: only 2.4GHz networks with WPA2 / WPA3 personal security keys are supported

Note 2: (open) Wi-Fi networks that require Wi-Fi logon are not supported.

● Hotspot + Client mode

Next to Wi-Fi hotspot, the UberLogger connects to your Wi-Fi-network as a client, and you can access the UberLogger through the IP-address that is assigned through your DHCP server.

Client details

Enter the details of your Wi-Fi-network below to allow the UberLogger to connect.

Note: in case connecting to Wi-Fi fails, press the *MODE* button for 5 seconds to enable the hotspot mode.

Network name (SSID)

Password

After entering the connection details above, you can test the Wi-Fi connection by clicking on the button below.

Tip: after configuring, this page will be available via <http://IPADDRESS> (e.g. <http://192.168.1.123>).

Connection: N/A

IP-address: [0.0.0.0](#)

RSSI: 0 dB

Press the "Save Wi-Fi settings" button to save the Wi-Fi settings and activate the Wi-Fi mode:

In case when you are connecting to your own Wi-Fi hotspot, you will be able to access the control panel through <http://IPADDRESS>, where IPADDRESS is the address of the Uberlogger. The link will also be provided by the Uberlogger when the connection to the Access Point is successful.

Note: a minimum Wi-Fi signal strength of -80 dB is required to connect with you Wi-Fi access point

Note 2: in case the connection fails, and you are not able to connect to your Uberlogger, you can press and hold the "mode" button for 10 seconds to reset the Wi-Fi mode back to Hotspot mode only.

5.9 Restore defaults

To restore the default settings of Uberlogger, click the "Restore default settings" button.

Backup or restore configuration

Restore defaults

Restore the default settings by clicking the button below. They will be saved after clicking the save button at the bottom of this page

Please note that the default settings are not yet saved, until you hit the "Save all settings" button:

Save all settings


5.10 Import/export configuration

- You can export the current settings using the “Download current settings” button. This will return a JSON file for later use.
- You can import the JSON settings file by using the “Import settings from file” button. Click on the button, select the exported JSON file and the settings will be imported.



6 Live Data viewer

Your Uberlogger is set to display all live data from your channel inputs by default. If any NTCs are enabled, the temperature will be shown in degrees Celsius. You can also see live values during logging. Refresh rates are always limited to 1 Hz.

 When logging data and having a sample frequency of 1, 2 or 5 Hz, it may take up to 70 seconds before data is shown in the live data viewer.

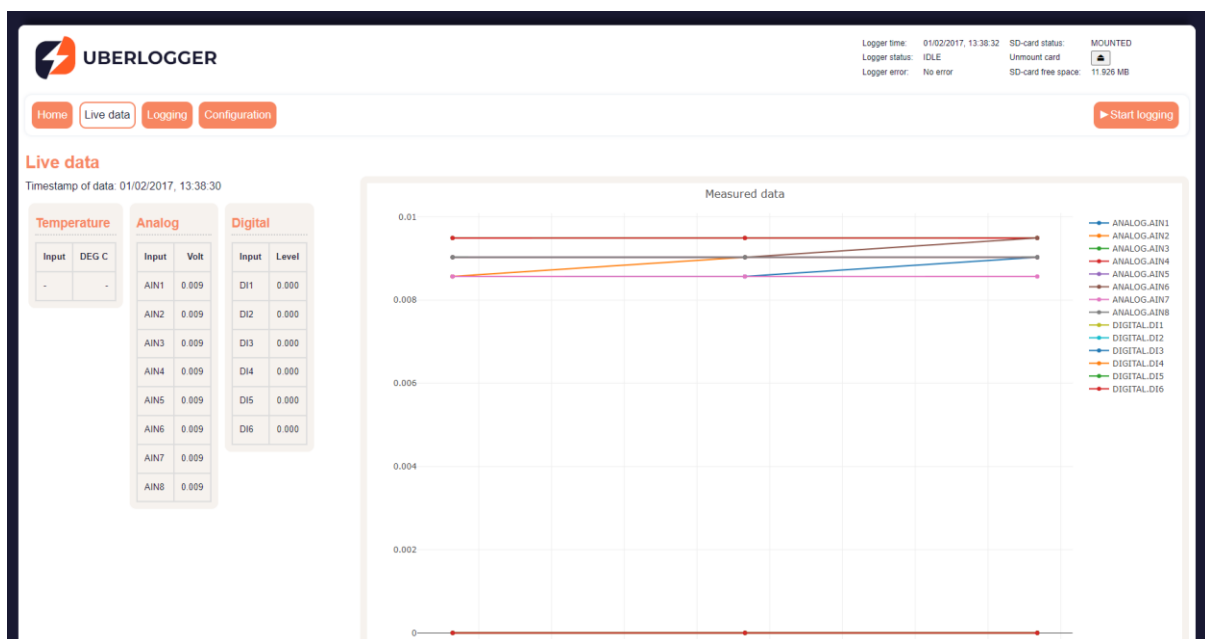


Figure 10: on the Live data tab you can see the current data measured by the Uberlogger. On the right the legend of the channels is shown.

To show or hide signals, click on the signals in the legend to toggle them on or off.

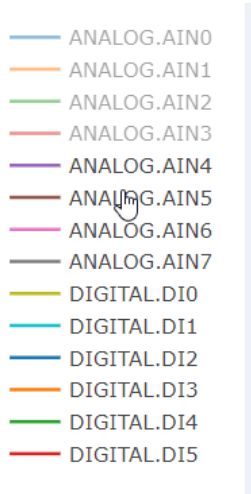



Figure 11: in the legend of the live data, you can click on each signal to show or hide it in the chart.



When you hover of the chart, you see a variety of icons popping up on the right.




You can zoom and move around the chart as described next.

6.1 Zooming


Box zoom: Click and drag on the plot to draw a rectangle around the area you want to zoom into the data. You can also click the  button on the right corner when hovering over the chart and perform the same action.

Zoom In & Out Buttons: On the top-right corner of the plot, you'll find zoom in and zoom out buttons   that will zoom in or out incrementally.

6.2 Panning/Scrolling


Drag: Click the pan  button and drag the plot in any direction to pan through the data. You can also click and hold on the x- or y-axis and move to the left, right, top or bottom to pan to the direction you want.

6.3 Reset axis

If you've zoomed in or scrolled and want to get back to the original view, use the "Reset Axes" button , located in the top-right corner of the plot.

If you double-click anywhere in the main plotting area, it will reset the plot to its original view (like the "Reset Axes" button). If you double-click on an axis, it will auto-scale just that axis.

6.4 Snapshot Button

Clicking the camera icon  will allow you to take a snapshot of your current plot view and download it as a PNG image.

7 API endpoints

To control your Uberlogger via Wi-Fi, you can make use of its endpoints which are described below. With this you can retrieve live data, the current settings, start and stop the logger and more.

Limitation: don't call the endpoints more than twice per second. There is no throttling implemented, so calling them too often may overload the Uberlogger and could lead to unstable behaviour.

Endpoint	/ajax/calibrate
Description	Trigger a calibration process in the logger.
Method	GET
Expected POST message (if applicable)	
Response (JSON)	<p>If ok:</p> <pre>{ resp: "ack" }</pre> <p>If not ok:</p> <pre>{ "resp": "nack", "reason": reason in string }</pre>

Endpoint	/ajax/formatSdcard
Description	Format the inserted SD-card
Method	GET
Expected POST message (if applicable)	
Response (JSON)	<p>If ok:</p> <pre>{ resp: "ack" }</pre> <p>If not ok:</p> <pre>{ "resp": "nack", "reason": reason as string }</pre>

Endpoint	/ajax/getFileList/*
Description	

Method	GET
Expected POST message (if applicable) or notes	You'll need to specify which directory to search to. /ajax/getFileList/ will give the root directory. Always end with a '/'
Response (JSON)	<p>Example:</p> <pre> { "root": { "1": { "NAME": "log0.csv", "TYPE": "FILE", "SIZE": "9995" }, "2": { "NAME": "System Volume Information", "TYPE": "DIRECTORY", "SIZE": "0" }, "3": { "NAME": "TestFolder", "TYPE": "DIRECTORY", "SIZE": "0" }, "4": { "NAME": "log1.csv", "TYPE": "FILE", "SIZE": "15651" }, "5": { "NAME": "log2.csv", "TYPE": "FILE", "SIZE": "45354" } } } </pre> <p>Size is always in bytes.</p> <p>If a folder doesn't exist, a 404 HTTP error is sent</p>

Endpoint	/ajax/ getValues
Description	Get current ADC values , digital input values and state values
Method	GET
Expected POST message (if applicable)	
Response (JSON)	<pre> { "TIMESTAMP": 1695669126423, "READINGS": { "TEMPERATURE": { </pre>

	<pre> "UNITS": "DEG C", "VALUES": { "T1": 25.100 } }, "ANALOG": { "UNITS": "Volt", "VALUES": { "AIN2": -0.003936, "AIN3": -0.003473, "AIN4": -0.003473, "AIN5": -0.003010, "AIN6": -0.003010, "AIN7": -0.002546, "AIN8": -0.002083 } }, "DIGITAL": { "UNITS": "Level", "VALUES": { "DI1": 0, "DI2": 0, "DI3": 0, "DI4": 0, "DI5": 0, "DI6": 0 } } }, "LOGGER_STATE": 9, "ERRORCODE": 0, "FW_VERSION": "0.1.0_2023.09.19.21.53", "SD_CARD_FREE_SPACE": 15436928, "SD_CARD_STATUS": 2, "WIFI_TEST_STATUS": 2, "WIFI_TEST_IP": "0.0.0.0", "WIFI_TEST_RSSI": 0 } </pre>
Explanation	<p>TIMESTAMP = Unix timestamp in milliseconds READINGS = JSON object containing all channels. It may have the following sub objects: TEMPERATURE, ANALOG and DIGITAL.</p> <p>TEMPERATURE = temperature channels ANALOG = analog channels DIGITAL = digital channels</p> <p>UNITS = unit of channel VALUES = value(s) of the channel(s)</p>

	<p>LOGGER_STATE can have the following states:</p> <ul style="list-style-type: none">1 = Idle2 = Logging3 = persisting settings4 = Syncing settings5 = Syncing time6 = error occurred7 = rebooting system8 = Firmware update mode9 = getting one data packet from ADC10 = Calibrating11 = formatting12 = connecting to access point13 = disconnecting from access point <p>ERROR_CODES = errors active. See section 9.3 for the exact numbers.</p> <p>FW_VERSION = Firmware version</p> <p>SD_CARD_FREE_SPACE = free space on SD card in kB</p> <p>SD_CARD_STATUS = state of SD card</p> <ul style="list-style-type: none">0 = ejected1 = unmounted2 = mounted3 = mount error <p>WIFI_TEST_STATUS = state of Wi-Fi for access point</p> <ul style="list-style-type: none">0 = idle1 = disconnected2 = connection to access point failed3 = connecting to access point <p>WIFI_TEST_IP = IP address of Uberlogger when connecting to access point. Will be 0.0.0.0 when not enabled or the last known IP address.</p> <p>WIFI_TEST_RSSI = RSSI (signal strength) of Uberlogger to the access point</p>
--	---

Endpoint	/ajax/ loggerStart
Description	Start the logger
Method	POST
Expected POST message (if applicable)	Empty
Response (JSON)	If ok: <pre>{ resp: "ack" }</pre> If not ok: <pre>{ "resp": "nack", "reason": reason as string }</pre>

Endpoint	/ajax/ loggerStop
Description	Stop the logger
Method	POST
Expected POST message (if applicable)	Empty
Response (JSON)	If ok: <pre>{ resp: "ack" }</pre> If not ok (only when not logging) <pre>{ "resp": "nack", "reason": "Logger not logging" }</pre>

8 Firmware update

You can update the firmware by clicking on “Firmware update” at the bottom of the Configuration page. You download the latest firmware on the website of Uberlogger:

www.Uberlogger.com/support. To update the firmware, follow the next steps:

- Extract the zip with the firmware files into a directory.
- Go to “Update firmware” under “Configuration”:

Firmware

Current firmware version: 0.0.1

[Update firmware](#)

- Select the ota_main.bin, ota_support.bin and ota_filesystem.bin files for the appropriate inputs:

Uberlogger Firmware upgrade

Make sure you have an SD card inserted! Do not power-toggle the device while flashing!!

File ota_main.bin	<input type="button" value="Choose File"/>	ota_main.bin
ota_main.bin path	<input type="text" value="ota_main.bin"/>	
File ota_support.bin	<input type="button" value="Choose File"/>	ota_filesystem.bin
ota_support.bin path	<input type="text" value="ota_filesystem.bin"/>	
File ota_filesystem.bin	<input type="button" value="Choose File"/>	ota_support.bin
ota_filesystem.bin path	<input type="text" value="ota_support.bin"/>	
<input type="button" value="Upload & update"/>		

Figure 12: screen of firmware updates

! **Important: before continuing, make sure that you do not interrupt the update process! This may brick your device!**


- Click "Upload & update" to and confirm the next message with "OK" to start the update process.

192.168.4.1 says

You are about to flash your Uberlogger. Do not interrupt this process, since this may brick your Uberlogger! Continue?

- Note that the green LED on the Uberlogger is blinking fast while updating. Please wait for about 60 seconds before the system is done and the green LED is continuously on again.

ota_main.bin path	<input type="text" value="ota_main.bin"/>
File ota_support.bin	<input type="button" value="Choose File"/> ota_support.bin
ota_support.bin path	<input type="text" value="ota_support.bin"/>
File ota_filesystem.bin	<input type="button" value="Choose File"/> ota_filesystem.bin
ota_filesystem.bin path	<input type="text" value="ota_filesystem.bin"/>
<input type="button" value="Upload & update"/>	

Upload complete! 

Updating firmware..please wait until green led is lighting up continuously again and reconnect to the Uberlogger (if necessary). After that go back to the [start page](#)

Figure 13: screen should show "Upload complete "when successfully updating the firmware.

- Check that the green LED is turned on constantly again. After this, you can connect to the Uberlogger again and click the start page link.

9 Problem solving

9.1 Measurements giving wrong values

9.1.1 Analog zero offset is very high (in volts range)

Check that the red DIP-switches positions correspond with the settings on the Configuration page. See also chapter 5.5.3.

9.1.2 Analog zero offset deviates small, but significant

If analog inputs are not 0V, then calibrate the Uberlogger using the Calibration button. Please note that the values will always fluctuate about $\pm 0.02V$ for 12 bits and $\pm 0.01V$ for 16 bits.

9.1.3 I have 2 temperature sensors in open air, but the temperatures are not equal

Having a temperature difference between sensors in open air can quickly happen.

9.1.4 Digital inputs are not triggering

Digital inputs require a minimum of 2.0V for triggering to go up.

If you are still experiencing measurement issues, please contact support via www.uberlogger.com.

9.2 Wi-Fi problems

9.2.1 When Unable to Connect to the Uberlogger Configured as a Hotspot:

- **Check Proximity:** Ensure that you are within range of the Uberlogger's hotspot signal. Walls or other obstacles can degrade the signal quality.
- **Reboot the Uberlogger:** Power-cycle or reset the Uberlogger to refresh its settings and try connecting again.
- **Check for Interference:** If you are in an area with multiple Wi-Fi networks, check if the Wi-Fi channel of the Uberlogger hotspot channel is not interfering with another network. You can change the network channel of the hotspot as described in section 5.8.2.

9.2.2 When Unable to Connect the Uberlogger to a Local Access Point:

- **Check your access point frequency:** currently only 2.4 GHz networks are supported.
- **Check RSSI Signal:** Verify that the RSSI (Received Signal Strength Indicator) signal of the local access point is strong enough for the Uberlogger to connect. It should have an RSSI of minimum -80 dB.
- **Confirm Password:** Make sure that you've entered the correct password for the local access point.
- **Change Wi-Fi Channel:** Ensure that the Wi-Fi channel set on the local access point is compatible with the Uberlogger. You may need to change either device setting.
- **Reboot Both Devices:** Try power-cycling both the Uberlogger and the local access point. Wait for a minute or two before powering them back on.
- **Guest networks and enterprise networks:** currently the Uberlogger does not support guest networks which require acceptance of network access conditions. Also, networks with certificates are not supported.

- **Check for MAC Filtering:** Ensure that your local access point doesn't have MAC address filtering enabled. If it does, add the Uberlogger's MAC address to the allowed list.

9.3 Red LED flashing & Error codes

In case an error occurs, the red LED on the Uberlogger will be flashing and you can see the error code on the configuration page. Each error code is described in Table 1.

Error code	Meaning	Solution
1	Unable to open log file.	Please check the SD card for errors on your PC or if the SD card is full.
4, 8, 32, 256	Internal hardware error	Please contact customer support and report the corresponding error code
16	Unable to write on SD card.	<ul style="list-style-type: none"> - Check the free disk space of the SD card. - Check if you read/write the card on another device. - If you still get this error, contact Uberlogger support
32	Sync error	Unable to synchronize with support chip. Contact Uberlogger support
128	Unable to mount SD card	Try reading the SD card on a PC and then putting the SD card back into the Uberlogger may solve the issue. If not, try another SD card.
512	No free space	You need at least 200 kB of free space on the SD card. Try remove files to free up space on the SD card
4096	Max file size reached	The maximum file size has been exceeded. Currently limited to 4000000000 bytes.

Table 1: all error codes with description and solution of the Uberlogger:

10 Customer support

You can contact customer support at Uberlogger by going to www.uberlogger.com/support.

11 Electrical/mechanical specifications

Parameter	Description	Value
Electrical characteristics		
Supply voltage		4.75 V ... 5.25 V
Supply current		300 mA (max)
Analog input characteristics		
Input voltage range	Selectable	-10 V ... +10 V -60 V ... +60 V
Input impedance		100 kOhm
Input accuracy		+/-0.5%
ADC resolution	Selectable	12-bit 16-bit
Analog filter	Analog anti-aliasing filter cut-off frequency (1st order)	5 kHz
Digital filter on analog inputs	Digital anti-aliasing filter cut-off frequency (1st order) Active in 16-bit mode only	$f_{\text{sample}}/2$
Input protection	Over-voltage protection	clamped
Digital input characteristics		
Input voltage range		-60 V ... +60 V
Input impedance		100 kOhm
Analog filter	Analog de-bounce filter cut-off frequency (1st order)	100 kHz
Input LOW	Voltage to read digital read LOW (false)	1.0 V
Input HIGH	Voltage to read digital read HIGH (true)	2.0 V
Input protection	Over-voltage protection	Clamped
Connectivity		
NTC type		10 kOhm @ 25 °C, beta=3950
NTC connector		JST-XH
Wi-Fi security		WPA2 personal
USB-Port-C		Only used for power
SD-Card		MicroSD Up to 32GB FAT only Max file size 4GB
Mechanical		
Dimensions (outer)		148x77x23 mm (approximately)
Enclosure type		PCB stacked